

United States Navy
Treasury Department

March 1st 1854

Sir,

Your invoice of the 27th of February was duly received.
The expenses incident to bringing the Steam Boat
Act into operation, are paid out of a special appropriation.
You will please to ^{on} record an account at the end of each quarter
of the expense of preparing the feasible alloy. But the expenses
incurred at the encumbrance of the business, in the purchase
of apparatus, metals &c will be paid immediately in the
account being forwarded with the proper vouchers.

It is not in the power of this Department to give
any further account than has already been forwarded to you
of the experiments made at the Navy Yard in this city.
Of those made when Mr. Ellis was chief engineer, records
appear to have been kept, and Mr. Copeland, now recently
employed in the business, is free to give the particulars of his
experiments in alloy, specially paid for the same. To demand
so unreasonable this Department can give no countenance,
as Mr. Copeland made his experiments with apparatus and
metals, and in a building supplied by the public, and
received a stipulated price for his services. Besides

this, Mr Hunt the present Chief Engineer at the Navy
Yards, doubts if what Mr. C. B. Johnson has to communicate
could be of any use to you.

If you speak of "the want of absolute reliability
upon the melting point of the alloys, chiefly arising from
the segregation of alloys into those of greater or less fusibility"
I am much interested in having been made to this Department,
it would seem that the melting point depends not solely
on the quality and proportion of the metals entering into
the alloy, but, in part, on the degree of heat used in preparing
it, and on the length of time the heat is applied, different
degrees of heat producing different structures of the compound
metals.

In relation to the point, it may not be inappropriate
to observe that a majority of the Boards of Supervising Inspectors
appear to be of opinion that better dependence can be placed
on the alloys, insofar as they are applied in a manner somewhat
similar to that provided for in Admiral Lord Lyons' safety
guards. On this subject, you may learn something of interest
in the recent publication, a copy of which is sent to you
by the day mail.

A copy of the last annual report for this Department
is also sent to you, in the document accompanying it.

Beginning on page 298, you will find the Report of
the Board of Supervising Inspectors.

By applying at the Custom House, you will learn the
whereabouts of the Social Inspector of Steam Boats at Philadelphia.
From them you will be able to procure specimens of the
alloy plugs in the form in which they have hitherto been used.

You request instructions "in relation to the different points
of temperature (or pressure of steam) at which the alloys are
to fuse." On this point, Mr. C. B. Johnson, the Supervising
Inspector at New York, has been requested to correspond
with you. You will receive an order from him for a quantity
of fusible alloy to be sent to California. This you will
please to fill as soon as you conveniently can, as such an
order was sent from this Department to the Navy Department
more than six months ago, but, through some unexplained
cause, never reached the Chief Engineer at the Navy Yards.

Very Respectfully
James H. Smith
Secretary of Navy

cc

J. C. Booth Esq.

Walter S. Reiser

U. S. Mint

Philadelphia

1854
March 1st
Jas Guthrie
Washington
D.C.

James Guthrie
Secretary of Navy

March